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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/548,912	04/13/2000	Brian Mitchell Bass	RAL9-00-0017	7377

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EXAMINER	
PHUNKULH, BOB A	
ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/548,912	BASS ET AL.	
	Examiner	Art Unit	
	Bob A. Phunkulh	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-17 and 19* is/are rejected.

7)☒ Claim(s) *18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/31/2004 has been entered.

This communication is in response to applicant's 08/31/2004 amendment/responses in the application of **Bass et al.** for "**Method and System for Network Processor Scheduling Outputs Using Calendars**" filed 04/13/2000. The amendments/response to the claims have been entered. No claims have been canceled. Claim 19 has been added. Claims 2-19 are now pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4, 10, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. (US 5,835,494), hereinafter Hughes.

Regarding claim 4, Hughes discloses an apparatus for routing packets in a communications network comprising:

a plurality of queues in which information unit ready for transmission is being stored (*multiple service queues*, **col. 9 line 49 to col. 10 line 2**);

at least one time-based calendar being operable to select a queue from which a packet is to be transmitted in order to sustain a predefined bandwidth (*higher granularity calendars are used for scheduling faster transfer rates (i.e. real-time data)*, **see figures 1 and 2; col. 3 lines 1-8; and col. 6 line 57-59**);

at least one time independent calendar having spaced slots whereat queue pointers identifying queues containing information units to be transmitted are being stored (*lower granularity calendars are used for scheduling slower transfer rates (non-real-time data) having pointers to identifying stored data*, **see figures 1 and 2; col. 3 line 1-8; and col. 6 lines 60-67**);

a current pointer (*a pointer 212 that is used to as an index to low-granularity calender 114*, **see col. 7 lines 50-57**), associated with the at least time independent calendar, advancing at predefined time interval to select a slot whereat a queue being identified by one of said queue pointers is selected and an information unit is transmitted from the queue to an output destination (**see col. 10 line 65 to col. 11 line 24**).

Regarding claim 10, the apparatus comprising a common set of queues being serviced by the at least one time-based calendar and the at least one time independent

calendar to provide best effort bandwidth and minimum bandwidth scheduling (service queue 122, **see figure 2 and col. 8 line 31-57**).

Regarding claim 11, Hughes discloses am apparatus comprising:

at least one time independent calendar partitioned into multiple positions wherein each position stores information including information pointers pointing to information sources (the low-granularity calendar 114 having a plurality of positions where each position stores information including information pointers (head and tail pointers), see figure 2; col. 6 lines 60-67) ;

a current pointer that advances from one position to a next in response to control signals (a pointer 212 that is used as index to low-granularity calendar 114, see col. 7 lines 50-57) ; and

a controller (transmission control unit 106) responsive to signals from a first position wherein the current pointer is aligned to identifies a second position whereat the current pointer is placed for future servicing after being detached from the first position (see col. 7 line 58 to col. 8 line 12).

Regarding claim 13, Hughes discloses if an information source is present at a position which the information pointer points an information unit is transferred from the information source to an output destination (see col. 4 lines 42-48).

Regarding claim 14, Hughes discloses the information source includes port queues (see col. 4 lines 42-48).

Regarding claim 15, Hughes discloses the output destination includes port queues (see col. 4 lines 42-48).

Regarding claim 19, Hughes discloses the information source includes port queues (see col. 4 lines 42-48).

Regarding claim 17, Hughes discloses a method to routs information units in a communications network comprising:

providing at least one calendar partitioned into a plurality of locations wherein each location represents a predefined unit of bandwidth and adapted to store pointers identifying queues with information units ready for transmission (*higher granularity calendars, and lower granularity calendars, where each having a plurality of slots and pointers*, **see figure 2 and col. 3 lines 18; and col. 6 lines 30-67**);

selecting one of the locations by advancing a current pointer (*a pointer 210 or 212*) relative to the calendar at predefined time intervals (**see col. 7 lines 50-65**);

examining the one of the locations;

transmitting an information unit from a queue having a pointer at said one of the locations to the network (**see col. 7 line 1-5**);

detaching the pointer from its current location (*the pointer 210 or 212 is detach from its current location by increment*, **see col. 7 lines 66 to col. 8 line 26**) ; and attaching said pointer to another location based upon an algorithm (*the pointer 210 or 212 is attach to another location based on increment*, **see col. 7 line 66 to col. 8 line 26**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Ohba (US 6,101,193).

Regarding claim 2, Hughes discloses a method of selecting during any processing cycle one processed information unit from a plurality of information units ready at that time for transmission from a network processor toward a data transmission network, the method comprising:

receiving priority information about each of the information units ready for processing (**see col. 3 lines 9-24**);

placing each information unit ready for transmission into one of several prioritized calendars based on the priority information associated with each processing unit, one of the calendars being time-based and an other one of the calendars being time independent (*higher granularity calendars, and lower granularity calendars, where each*

having a plurality of slots and pointers, **see figure 2 and col. 3 lines 18; and col. 6 lines 30-67**);

selecting one of the queues calendars to service at each time cycle based on a stored set of rules and selecting one of the information units from the selected queue calendar according to an algorithm (**see col. 7 lines 50-56**); and

sending the selected information unit from to the network.

Hughes fails to explicitly discloses calculating the new position in the weighted fair calendar based on the size of the packet.

Regarding claim 3, Hughes fails to discloses providing a back pressure indicator when the output for a given queue is not empty, preventing that calendar from being selected during the time cycle.

Ohba, on the other hand, discloses both using the weight and the length of the packet in a packet scheduling scheme (see figures steps S11-S13), discloses providing a back pressure indicator when the output for a given queue is not empty, preventing that calendar from being selected during the time cycle, see col. 3 lines 61 to col. 4 line 8, and figures 2-5 show a feedback line from output unit 30 to inputs of queues in scheduling unit 42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to includes the teaching of Ohba in the system taught

by Hughes in order to provides a packet scheduling scheme which is capable of improving the fairness characteristic in a short time scale by suppressing the burstiness of traffic compared with the conventional WFQ algorithm.

Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Ohba (US 6,101,193).

Regarding claim 12, Hughes fails to explicitly disclose calculating the new position in the weighted fair calendar based on the size of the packet.

Regarding claim 16, Hughes fails to discloses the apparatus further including a threshold signal generated when port queues exceed a predefined threshold and is used by the time independent calendar to temporarily cease transmitting information units from flow queue to target port queues.

Ohba, on the other hand, discloses both using the weight and the length of the packet in a packet scheduling scheme (see figures steps S11-S13), discloses providing a back pressure indicator when the output for a given queue is not empty, preventing that calendar from being selected during the time cycle, see col. 3 lines 61 to col. 4 line 8, and figures 2-5 show a feedback line from output unit 30 to inputs of queues in scheduling unit 42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to includes the teaching of Ohba in the system taught by Hughes in order to provides a packet scheduling scheme which is capable of improving the fairness characteristic in a short time scale by suppressing the burstiness of traffic compared with the conventional WFQ algorithm.

Allowable Subject Matter

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 8/31/2004 have been fully considered but they are not persuasive.

In response to the applicant's argument in page 10, Hughes discloses at least one time independent calendar having spaced slots whereat queue pointers identifying queues containing information units to be transmitted are being stored (*lower granularity calendars are used for scheduling slower transfer rates (non-real-time data) having pointers to identifying stored data*, **see figures 1 and 2; col. 3 line 1-8; and col. 6 lines 60-67**);

Conclusion

Any response to this action should be mailed to:

The following address mail to be delivered by the United States Postal Service (USPS) only:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for formal communications intended for entry)

Or:

The following address mail to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, Hand Delivery, etc.) as follow:

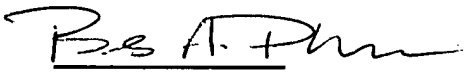
U.S. Patent and Trademark Office
220 20th Street South
Customer Window, Mail Stop _____
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Bob A. Phunkulh** whose telephone number is **(571) 272-3083.** The examiner can normally be reached on Monday-Tursday from 8:00 A.M. to 5:00 P.M. (first week of the bi-week) and Monday-Friday (for second week of the bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor **Kenneth Vanderpuye**, can be reach on **(571) 272-3078.** The fax phone number for this group is **(703) 872-9306.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bob A. Phunkulh



BOB PHUNKULH
PRIMARY EXAMINER

TC 2600
Art Unit 2661
November 17, 2004